KOENIG
step forward
Your Trusted Training Partner

AUTODESK
Authorized Training Center

BIM-Enabled Quantity Surveying (5D BIM)

Course Objective:

This course is designed to equip Quantity Surveyors with practical BIM skills to extract quantities, prepare BOQs, perform cost estimation, manage variations, and support project cost control using BIM workflows. The focus is on **BIM as a support system for QS**, not as a modeling-only discipline.

Target Audience:

- Quantity Surveyors & Cost Engineers
- Estimation & Billing Engineers
- Planning & Contracts Engineers
- Civil Engineers transitioning to BIM-QS roles
- BIM Coordinators supporting cost management

Course Outcomes:

After completing this course, participants will be able to:

- Perform BIM-based quantity take-off confidently
- Prepare BOQs and cost estimates from BIM models
- Manage variations and cost changes using BIM
- Support billing, valuation, and cost control activities
- Work effectively as a **BIM-enabled Quantity Surveyor**

Table of Contents: (48hrs)

Module 1: BIM Fundamentals for Quantity Surveyors

- What BIM means for Quantity Surveying
- Difference between 2D QS workflow vs BIM-based QS
- BIM dimensions explained: 3D, 4D, **5D (Cost)**
- BIM Execution Plan (BEP)
- Level of Development (LOD 100–500) and QS relevance

Outcome: Understand how BIM supports QS tasks across project stages

Module 2: BIM Models & Data for QS

- Understanding BIM elements vs traditional drawings
- Model intelligence: parameters, properties & quantities
- Classification systems (Uniclass, OmniClass)
- Model accuracy & quantity reliability checks
- QS responsibility in model review

Outcome: Ability to validate BIM models for quantity extraction

Module 3: Quantity Take-Off Using BIM Models

- Model-based quantity take-off concepts
- Extracting quantities from **Autodesk Revit**
    - Concrete, reinforcement, masonry, finishes
    - Doors, windows, floors, walls, structural elements
- Creating quantity schedules & material take-off
- Handling model revisions & updates

Outcome: Perform accurate BIM-based quantity take-off

Module 4: Coordination Models for QS Review

- Using coordination models for quantity validation
- Clash detection impact on quantities
- Overview of **Autodesk Navisworks** for QS
- Model federation and its QS benefits

Outcome: Support QS decisions using coordinated BIM models

Module 5: BOQ Preparation Using BIM

- Linking BIM quantities to BOQ structure
- Work Breakdown Structure (WBS) for QS
- Mapping model elements to BOQ items
- Exporting quantities to Excel
- Managing item descriptions & measurement rules

Outcome: Prepare BOQs directly supported by BIM data

Module 6: Model-Based Measurement & Standards

- Measurement rules (IS, SMM)
- Aligning BIM quantities with standard measurement methods
- Dealing with non-modelled items (preliminaries, contingencies)

Outcome: Apply measurement standards to BIM outputs

Module 7: Troubleshooting 5D BIM

- Introduction
- QS Measurement Vs Geometry from Model
- Model Quantities and Model Derived Quantities
- Missing Objects / Objects Used in the Wrong Context
- Below Ground / Above Ground Quantities
- Assembly Items
- Rooms
- Proxy Objects
- Replica Dimensions in Same Object
- Different Lod in the Same Model
- Missing Quantities and Geometry Inaccuracies
- Labelling
- Views and Details

Module 8: BIM for Tendering & Contracts

- BIM deliverables in tender stage
- Model-based tender quantity validation
- Employer's Information Requirements (EIR) – QS role
- BIM risks & contractual considerations
- QS liability in BIM projects

Outcome: Support tendering and contracts using BIM outputs